

# ATOMIC ENERGY *newsletter*®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH  
ROBERT M. SHERMAN, EDITOR, PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

Dear Sir:

February 8th, 1955  
Vol. 12... No. 13

A 1955 budget of \$3,815,000 for research into the economic use of nuclear fuels for electrical energy production has now been set up by Atomic Power Development Associates, a group of thirty-three electric utility, manufacturing, engineering, and research companies. Walker L. Cisler, president, Detroit Edison Co., is chairman of the Associates management committee. A test facility will be established at Detroit Edison's Delray Power Plant to test various components of nuclear power plants. (Other BUSINESS news, p. 2).

A two week intensive course in Nuclear Reactors and Radiations in Industry will be given by the Univ. of Michigan, Aug. 15-26, in Ann Arbor. Sponsored by the Nuclear Engineering Committee of the College of Engineering, the course will be conducted by the Engineering College staff, and guest lecturers. Further information from: Prof. William Kerr, Dep't. of Elec. Eng., Univ. of Michigan, Ann Arbor..... Atomic Energy Utilization by Industry is a special symposium being held Feb. 18, at the Univ. of Louisville, sponsored by the University and Oak Ridge Institute of Nuclear Studies. Information from: Dr. G.C. Williams (symposium chairman), Speed Scientific School, Univ. of Louisville, Louisville, Ky. (Other CONFERENCES, p. 2)

The feasibility of a 20,000 kw. (electrical energy) nuclear reactor has been established through research at Canada's Chalk River, Ontario, nuclear research laboratories, and detailed design of the prototype reactor will start this Spring, W. J. Bennett, president, Atomic Energy of Canada, Ltd., told a Toronto Board of Trade meeting last fortnight in that city. He said it was hoped that the reactor and power plant would be operated by one of the utilities, with power generated fed into the existing grid although the power might not be economic. Research is underway on a 100,000 kw. (electrical energy) nuclear reactor, he stated.

Selling to the U.S. Atomic Energy Commission, a procurement information booklet, is now in its 1955 edition, and may be obtained from Superintendent of Documents, Wash. 25, D.C., for 25¢ the copy. (Other BOOK & PAMPHLET news, p. 3).

A four-company group headed by Freeport Sulphur Co. has made an agreement with Sapphire Petroleum, Ltd., for uranium prospecting on 160,000 acres of Indian Reservation land in New Mexico. Under the agreement, Sapphire will get a 25% share of any discoveries. Participating with Freeport are White, Weld & Co., Panhandle Oil Corp., and White Eagle Oil Co. (Other RAW MATERIAL news, p. 3).

The U.S. Air Force's Research and Development Command now claims that it has used gamma radiation to produce vulcanization of rubber "equal or superior" to conventional vulcanizing means, at its Wright Air Development Center. Further information from: R. & D Command, USAF, Box 1395, Baltimore 3, Md.

The effect of ionizing radiation (from nuclear detonations) on certain drugs and medical preparations is now covered in a report (recently de-classified) by the Food & Drug Administration, Wash. 25, D.C.

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ATOMIC ENERGY BUSINESS REPORTS...

NUCLEAR REACTOR CONTRACT AWARDED NEW YORK FIRM:- A contract for the design, engineering, and construction of a nuclear reactor has now been obtained by American Machine & Foundry Co., New York. The job is being done for Battelle Institute, Columbus, O. The reactor, which will be one of the first in the U.S. to be owned and operated by a private organization, is for the \$1.5 million nuclear research center Battelle is building fifteen miles west of downtown Columbus. Of the so-called "swimming pool" type, the reactor will be modeled somewhat after the bulk shielding reactor at the USAEC's Oak Ridge National Laboratory. Together with auxiliary equipment and the building to house it, the estimated cost to Battelle is placed at \$500,000. American Machine and Foundry is starting design work immediately; construction will begin after review and licensing by the USAEC. A target date of February, 1956, has been set for the starting-up of the reactor. (American Machine & Foundry, which has been actively engaged in atomic energy development since the earliest days of the U.S.'s atomic energy program, has developed and manufactured reactor-control and remote-handling systems, as well as a variety of other atomic equipment.)

SEVEN CONCERNS TO PARTICIPATE IN NUCLEAR REACTOR RESEARCH WORK:- Seven industrial concerns have now signed an agreement to participate in the nuclear reactor research program at Armour Research Foundation (Illinois Institute of Technology), Chicago. The companies are Arc Equipment Co., Bryan, O.; Armour & Co., Chicago; Borg-Warner Corp., Chicago; Elgin National Watch Co., Elgin, Ill.; Illinois Tool Works, Chicago; Richardson Co., Melrose Park, Ill.; and United States Steel Corp. Armour Research Foundation will start construction March 15th of a nuclear reactor for industrial research, on the Illinois Tech campus, Chicago. Each of the participating companies will make an initial payment of \$20,000 and will share in the benefits of the research for three years after the reactor goes into operation. Completion date for the reactor is October 1st, of this year. Costs are estimated at \$500,000, one third of which will be provided by the Foundation.

BIDS ASKED AT REACTOR TESTING STATION:- Plans and specification are now available (from USAEC, Idaho Falls, Ia.) for a \$100,000 construction job to provide facilities for a program to determine certain basic reactor characteristics, at the national reactor testing station, Arco, Idaho. To be constructed are an instrument cell building, a test pit building, a control building, and other facilities. (Phillips Petroleum Co., prime contractor for the USAEC, in certain operations here, will conduct the testing program.)

FINANCING BY ATOMIC INDUSTRY IS OUTLINED:- Lawrence R. Hafstad, atomic energy consultant to the Chase National Bank, and formerly with the USAEC, described some of the money problems of atomic energy firms to a meeting in New York last fortnight of the New York State Bankers' Association. Manufacturers of radiation instruments and other components now seek private financing, rather than attempting to secure substantial bank loans, he explained. However, they may become borrowers, as they develop overseas markets and find larger domestic markets, he noted. Nuclear research may well require bank loans, but such requirements will be less than the needs of nuclear power plants, Dr. Hafstad advised the group.

ATOMIC INDUSTRY CONFERENCE SCHEDULED:- A meeting on "Atomic Energy, the New Industrial Frontier", to be jointly sponsored by Stanford Research Institute, Stanford, Calif., and the Atomic Industrial Forum, New York, is to be held April 4-5, in San Francisco. The program will include discussions by Glenn Seaborg, University of Calif.; Bruce Morgan, technical director of the Quartermaster Corps' food sterilization program; Edward Teller, physicist; Jesse Johnson, USAEC; Chauncey Starr, director of the atomic energy department, North American Aviation, Inc.; R.P. Peterson, director of atomic energy research, Republic Steel Corp. Subjects to be covered will include: (1) progress in developing nuclear power plants, (2) Potential uses of nuclear reactors, (3) Atomic energy in the food industry, in the oil industry, etc., (4) Products and services required by an expanding atomic energy industry, (5) The ramifications of atomic energy in such fields as finance, insurance, and industry.



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NEW PRODUCTS, PROCESSES & INSTRUMENTS...for lab & plant...

FROM THE MANUFACTURERS:- New alpha scintillation counter, with a background said to be as low as three counts per minute, accepts samples up to two inches in diameter. On opening, a microswitch on the light-tight door removes the high voltage from the phototube. In operation, alpha particles first strike a zinc sulphide equipped light pipe which is optically coupled to the phototube. Voltage pulses from this phototube go into a two-stage amplifier whose output may feed into any standard scaler. --Radiation Counter Laboratories, Inc., Skokie, Ill.

Model 111B Scintillator is a scintillation-type instrument designed for uranium prospecting. A feature is a "percent" meter, scale of which is calibrated to indicate the percentage of uranium in the ore under examination. The instrument uses a 1½-in. diameter sodium iodide crystal and an 8 tube circuit; weight is 7 3/4 lbs. --Precision Radiation Instruments, Inc., Los Angeles 16, Calif.

NOTES:- New catalog of radiation instruments available from NRD Instrument Co., St. Louis 14, Mo. .... The U.S. Army's Medical Research Lab, Fort Knox, Ky., is now experimenting with a portable X-ray unit using radioactive thulium. Further information from Stanhope Bayne-Jones, M.D., Office of the Surgeon General, The Pentagon, Wash. 25, D. C.

ATOMIC ENERGY FINANCIAL REPORTS...

OWNERSHIP CHANGES:- Arthur D. Little, Inc., Cambridge, Mass., research and development organization, has now sold its interest in Cambridge Corp. to the Carrier Corp., Syracuse, N.Y. Cambridge Corp., which was jointly owned by Carrier and ADL, produced certain equipment for the Government based on ADL developments; special filters it made were for the USAEC. Plant and office of Cambridge Corp. is being moved to a new site in Lowell, Mass. .... Control of Standard Uranium Corp. has been sold by Joseph W. Frazer, one time associate of Henry J. Kaiser, and former chairman of Graham-Paige Corp., to Charles A. Steen, discoverer and owner of the Mi Vada uranium mine, and other producing properties. Frazer sold 400,000 shares of Standard Uranium common stock to Steen, retaining 62,000 shares in his family. Less than a month ago Frazer said he expected "to give more of my time and attention to the development of Standard Uranium".

ANALYSES AVAILABLE:- An 11-page brochure, "Investments in the Atom Age", is available from Thomson & McKinnon (11 Wall St., NYC).... A review of Vanadium Corp. may be obtained from American Securities Corp. (25 Broad St., NYC).... A report on Union Carbide & Carbon has been prepared by Dean Witter & Co. (14 Wall St., NYC).

CORPORATION REPORTS:- Current figures on uranium production, sales, etc., of Continental Uranium, Inc., are in letter to shareholders from chairman Gerald Gidwitz. Available from Mayer & O'Brien, Inc., Guaranty Bldg., Los Angeles 23, Cal.

NEW BOOKS & OTHER PUBLICATIONS...in the nuclear field...

Photographic Dosimetry of X-and Gamma Rays, by Margarete Ehrlich. Nat. Bureau of Standards Handbook 57. Primary factual data and basic principles necessary for photographic dosimetry. --Superintendent of Documents, Wash. 25, D.C. (15¢).

Nuclear Notes for Industry: This latest compilation (Jan. 7, 1955) is a guide to USAEC-developed unclassified reports of industrial interest. --USAEC, Tech. Info. Service, Oak Ridge, Tenn. (n/c).

A Killing in Uranium, by Ira U. Cobleigh. Pitfalls and opportunities. 69 pages. DuVal's Concensus, Inc., Long Island City, N.Y. (\$2.00).

RAW MATERIALS...prospecting, mining & marketing...

UNITED STATES:- Federal Uranium Corp. (controlled by Atlas Corp., investment trust), states it will take over five other western U.S. uranium mining firms: Kentucky-Utah Mining Co.; Howell Mining Co.; Interstate Uranium, Inc.; Western States Uranium, Inc.; and Utida Uranium, Inc. .... Rare Metals Corp., a firm owned by El Paso Natural Gas Co., and Western Natural Gas Co., states it has purchased all the properties and capital stock of Arrowhead Uranium Co., and that a processing mill will be built adjoining the Navajo reservation in Arizona.

ATOMIC ENERGY INDUSTRIAL PROGRESS IN THE UNITED STATES, July-Dec., 1954; A special report for readers of this LETTER from the 17th Semi-annual Report of the USAEC, issued Jan. 29th, 1955

**LEGISLATION:-** Enactment of the Atomic Energy Act of 1954, in Aug., 1954, was the first complete revision of the statutory charter of the USAEC since passage of the original legislation which set up the USAEC in 1946. This new law greatly enlarges the opportunity for industrial participation in atomic energy work, and also provides for the allocation to other nations of special nuclear materials for power and research reactors, and information as well on their design and construction.

**RAW MATERIALS:-** In the United States, with production of uranium ore and concentrates attaining new levels, uranium mining achieved rank as a major segment of the domestic non-ferrous metal mining industry, considering dollar value of product produced and the number of persons engaged in the industry. Sources outside the United States continued supplying uranium ores. Supplies came from the Skinkolobwe mine in the Belgian Congo; from the South Africa plants extracting uranium values from gold tailings there; and from the Port Radium and Ace mines of Eldorado Mining & Refining, Ltd., Canada. Other potential foreign sources include Australia, where the processing plant in the Northern Territory at Rum Jungle started up, and the new mines in Canada of Gunnar, Pronto, Algom, and others.

**CONSTRUCTION:-** Capital investment in atomic energy facilities reached \$6.2 billion, an increase over previous years. The increase was due, in part, to the new facilities constructed at Oak Ridge, Paducah, Portsmouth, Savannah River, and Hanford. Some \$1.2 billion was spent in fiscal 1954 for new plant and equipment. This was the largest expenditure of this nature ever incurred by the USAEC in a fiscal year, and was about 3½% of the total construction dollars in the U.S.

**PURCHASING:-** From July 1st, 1951 to September 30th, 1954, "small" business (less than 500 employees) received \$156 million in direct contracts awarded by the USAEC. During that time, "large" business received \$5.144 billion of such contracts. From April 1st to June 30th, 1954, "small" business received 49½% of the \$120.8 million in sub-contracts awarded in the USAEC program; from July 1st, 1951 to September 30th, 1954, "small" business received 34% of the \$2.5 billion in sub-contracts awarded.

**NUCLEAR REACTOR DEVELOPMENT:-** Progress in several phases of both industrial and military-type nuclear reactors was made. There were six reactors scheduled for completion from 1955 through 1959, which are of the "civilian power" type: (1) Pressurized water type, to deliver 60,000 kw. electrical energy, at Shippingport, Pa., with Westinghouse Electric, Stone & Webster, and Duquesne Light Co. working on this project; scheduled for 1957 completion. (2) Boiling water reactor, to deliver 5,000 kw. electrical energy, at Argonne National Laboratory, with Sargent & Lundy, and Allis-Chalmers working on this project; scheduled for 1956 completion. (3) Sodium graphite reactor, to deliver 20,000 kw. of heat (no electrical energy), at Santa Susana, Calif., with North American Aviation, Inc., contributing 25% of the approximately \$10 million involved, and that firm constructing it; completion scheduled for 1955. (4) Fast breeder reactor, being developed and designed by Argonne National Laboratory (site not yet selected), to deliver 15,000 kw. of electrical energy, completion scheduled for 1958. (5) Homogeneous reactor, being built at Oak Ridge National Laboratory, to deliver 300 kw. of electrical energy; completion scheduled for 1955. (6) Homogeneous reactor (thorium reactor) to be built by Oak Ridge National Laboratory (site not yet selected) to deliver 16,000 kw. of electrical energy; completion expected to be 1959.

Military reactors built (or under development) included types for submarines, naval vessels, and aircraft. Firms working on such types include Westinghouse Electric, General Electric, Newport News Shipbuilding, Electric Boat (div. of General Dynamics), Bethlehem Steel (shipbuilding div.), Carbide & Carbon Chemicals, and United Aircraft (Pratt & Whitney div.) In addition, American Locomotive Co. obtained a contract from the USAEC to design, build, and test operate a prototype "package" nuclear reactor power plant for military use. It is believed that a military plant of this type, which can be transported and erected anywhere in the world, will assist commercial development of such plants.

ATOMIC PATENT DIGEST...latest U. S. grants made...

GRANTS TO PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:- Gamma ray survey meter for determining the intensity of gamma radiation. Comprises (in part) a crystal scintillator for transforming gamma rays into light, with a photomultiplier discharge device for converting light rays into electric current. An electrostatic voltmeter is connected across a resistor in the anode-cathode circuit of the discharge device to indicate a current value. U. S. Pat. No. 2,700,108 issued Jan. 18th, 1955; assigned to Chatham Electronics Corp., New Jersey. (Inventor: Morris H. Shamos.)

Radiation dosimeter. Comprises (in part) an elongated, substantially cylindrical, sealed, transparent dielectric container having an ionizable gaseous medium in it, and myriad minute dielectric elements within this container, these elements of a composition different from that of the container. The interior of the container is virtually moisture-free. U. S. Pat. No. 2,700,109 issued Jan. 18th, 1955; assigned to Pacific Transducer Corp., Los Angeles, Calif. (Inventor: George A. Argabrite.)

A gamma ray survey meter for measuring the intensity of penetrating radiation. Comprises (in part) an ion chamber connected in series with a constant current device, a source of potential connected across this chamber, and constant current device, with a voltmeter connected across the ion chamber, and calibrated means provided, for varying the constant current characteristics of this constant current device. U. S. Pat. No. 2,700,110 issued Jan. 18th, 1955; assigned to Chatham Electronics Corp., New Jersey. (Inventor: Morris H. Shamos.)

Radiation source comprising (in part) a pair of annular disc-like members, with a pair of sheets interposed between these disc-like members, and radioactive material between the central portions of these sheets. Means are provided for securing these disc-like members and sheets in a compact unit; centrally located apertures are in each of these disc-like sheets, with beta radiation emitted from opposite faces of the radioactive source simultaneously. U. S. Pat. No. 2,700,111 issued Jan. 18th, 1955; assigned to Standard Oil Co., Chicago, Ill. (Inventors: Robert B. Jacobs and Evon C. Greanias.)

Device for intensification of X-ray images. A vacuum tube having a composite screen comprising fluorescent means for receiving a beam of X-ray radiation and converting this radiation beam into fluorescent light, with separating means transparent to this fluorescent light, and having the property of electrical conductivity. Photoelectric means adjacent to this separating means receive this fluorescent light through this transparent separating means, and emit in response to the fluorescent light a beam of electrons. Means are provided for converting these emitted electrons into video signals. U. S. Pat. No. 2,700,116 issued Jan. 18th, 1955, to Edward E. Sheldon, M.D. (N.Y. X-Ray Laboratory, Inc., 509 5th Ave., New York, N.Y.)

Subsurface exploration. The method of making a permeability log of a subsurface formation traversed by a bore hole. Comprises pumping a fluid into the borehole above the formation, the fluid containing a small amount of a radioactive substance, and simultaneously pumping a similar but non-radioactive fluid into the borehole below the formation, thereby establishing an interface between the fluids. The depth in the hole of this interface is determined by measuring the radioactivity of the fluid content throughout the portion of the hole being examined. The ratio of the two fluids being pumped into the hole is varied, while the sum of the two fluids is maintained constant, thereby causing the interface to move along the walls of the formation to another depth. The depth of the interface is again determined, and these operations are repeated while noting the ratios of the two fluids being pumped for each measured depth of the interface in the hole. U. S. Pat. No. 2,700,734 issued to The Texas Co., New York, N.Y. (Inventors: Edmund F. Egan and Gerhard Herzog, Houston, Texas.)

Sincerely,

The Staff,  
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